COMPLIANCE COMMITTEE **CC/ERT/ARR/2017/24**
19 April 2017

Report on the individual review of the annual submission of Switzerland submitted in 2015

Note by the secretariat

The report on the individual review of the annual submission of Switzerland submitted in 2015 was published on 19 April 2017. For purposes of rule 10, paragraph 2, of the rules of procedure of the Compliance Committee (annex to decision 4/CMP.2, as amended by decisions 4/CMP.4 and 8/CMP.9), the report is considered received by the secretariat on the same date. This report, FCCC/ARR/2015/CHE, contained in the annex to this note, is being forwarded to the Compliance Committee in accordance with section VI, paragraph 3, of the annex to decision 27/CMP.1.

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Framework Convention on Climate Change

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Report on the individual review of the annual submission of Switzerland submitted in 2015*

Note by the expert review team

Summary

Each Party included in Annex I to the Convention must submit an annual greenhouse gas (GHG) inventory covering emissions and removals of GHG emissions for all years from the base year (or period) to two years before the inventory due date (decision 24/CP.19). Parties included in Annex I to the Convention that are Parties to the Kyoto Protocol are also required to report supplementary information required under Article 7, paragraph 1, of the Kyoto Protocol, with the inventory submission due under the Convention. This report presents the results of the individual inventory review of the 2015 annual submission of Switzerland, conducted by an expert review team in accordance with the "Guidelines for review under Article 8 of the Kyoto Protocol". The review took place from 11 to 16 September 2016 in Bern, Switzerland.

* In the symbol for this document, 2015 refers to the year in which the inventory was submitted, not to the year of publication.

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Contents

I. Introduction[1]

1. This report covers the review of the 2015 annual submission of Switzerland organized by the UNFCCC secretariat, in accordance with the "Guidelines for review under Article 8 of the Kyoto Protocol" (decision 22/CMP.1, as revised by decision 4/CMP.11) (hereinafter referred to as the Article 8 review guidelines). As indicated in the Article 8 review guidelines, this review process also encompasses the review under the Convention, as described in the "Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention" (hereinafter referred to as the UNFCCC review guidelines) and particularly part III, "UNFCCC guidelines for the technical review of greenhouse gas inventories from Parties included in Annex I to the Convention". The review took place from 11 to 16 September 2016 in Bern, Switzerland, and was coordinated by Mr. Roman Payo and Mr. Nalin Srivastava (UNFCCC secretariat). Table 1 provides information on the composition of the expert review team (ERT) that conducted the review of Switzerland.

Table 1
Composition of the expert review team that conducted the review of Switzerland

Area of expertise	*Name*	*Party*
Generalist	Ms. Laura Dawidowski	Argentina
Energy	Mr. Ioannis Sempos	Greece
IPPU	Mr. Jacek Skoskiewicz	Poland
Agriculture	Ms. Anna Romanovskaya	Russian Federation
LULUCF	Mr. Zoltan Somogyi	Hungary
Waste	Ms. Sirintornthep Towprayoon	Thailand
Lead reviewers	Ms. Dawidowski	
	Mr. Sempos	

Abbreviations: IPPU = industrial processes and product use, LULUCF = land use, land-use change and forestry.

2. This report contains findings based on the assessment by the ERT of the 2015 annual submission against the Article 8 review guidelines. The ERT has made recommendations to resolve those findings related to issues,[2] including issues related to problems.[3] Other findings, and if applicable, the ERT's encouragements to resolve them, are also included.

[1] At the time of publication of this report, Switzerland had submitted its instrument of ratification of the Doha Amendment; however, the amendment had not yet entered into force. The implementation of the provisions of the Doha Amendment is therefore considered in this report in the context of decision 1/CMP.8, paragraph 6, pending the entry into force of the amendment.

[2] Issues are defined in decision 13/CP.20, annex, paragraph 81.

[3] Problems are defined in decision 22/CMP.1, annex, paragraphs 68 and 69, as revised by decision 4/CMP.11.

3. A draft version of this report was communicated to the Government of Switzerland, which provided comments that were considered and incorporated, as appropriate, into this final version of the report.

4. Annex I shows annual greenhouse gas emissions for Switzerland, including totals excluding and including the land use, land-use change and forestry sector, indirect CO_2 emissons and emissions by gas and by sector. Annex I also contains background data related to emissions and removals from activities under Article 3, paragraph 3, forest management under Article 3, paragraph 4, and additional activities under Article 3, paragraph 4, of the Kyoto Protocol, if elected, by gas, sector and activity for Switzerland.

5. Information to be included in the compilation and accounting database can be found in annex II.

6. The ERT notes that Switzerland's 2015 annual submission was delayed, consistent with decision 6/CMP.9, paragraph 4. As a result, the review of the 2015 annual submission is being held in conjunction with the review of the 2016 annual submission, in accordance with decision 10/CMP.11, paragraph 1. To the extent that identical information is presented in both annual submissions, the ERT has reviewed this information only once, and, as appropriate, has replicated the findings below in both the 2015 and the 2016 annual review report.

II. Summary and general assessment of the 2015 annual submission

7. Table 2 provides the ERT assessment of the annual submission with respect to the tasks undertaken during the review. Further information on the issues identified, as well as additional findings, may be found in tables 3 and 5 below.

Table 2
Summary of review results and general assessment of the inventory of Switzerland

Assessment				*Issue or problem ID#(s) in tables 3 and/or 5*[a]
Dates of submission	Original submission: 27 April 2015 (NIR), 8 April 2016 (Addendum to the NIR), 8 April 2016, version 2 (CRF tables), 27 April 2015 (SEF-CP1-2014, SEF-CP2-2013, SEF-CP2-2014)			
	Revised submission: 27 May 2015 (SEF tables), 7 November 2016, version 6 (CRF tables)			
	The values from the latest submission are used in this report			
Review format	In-country			
Application of the requirements of the UNFCCC Annex I inventory reporting guidelines and Wetlands Supplement (if applicable)	Have any issues been identified in the following areas:			
	1.	Identification of key categories	Yes	G.5
	2.	Selection and use of methodologies and assumptions	Yes	I.6, L.9, L.11, KL.3, KL.5
	3.	Development and selection of emission factors	Yes	E.15, A.9
	4.	Collection and selection of activity data	Yes	I.10, I.11, A.9, L.6,

Assessment			*Issue or problem ID#(s) in tables 3 and/or 5*[a]
			W.8, KL.3
	5. Reporting of recalculations	Yes	E.8
	6. Reporting of a consistent time series	Yes	KL.3
	7. Reporting of uncertainties, including methodologies	Yes	G.6, G.7
	8. QA/QC	QA/QC procedures were assessed in the context of the national system (see below)	
	9. Missing categories/completeness[b]	Yes	E.10, E.13, E.19,
	10. Application of corrections to the inventory	No	
Significance threshold	For categories reported as insignificant, has the Party provided sufficient information showing that the likely level of emissions meets the criteria in paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines?	No	E.12
Description of trends	Did the ERT conclude that the description in the NIR of the trends for the different gases and sectors is reasonable?	Yes	
Supplementary information under the Kyoto Protocol	Have any issues been identified in the following areas:		
	1. National system:		
	(a) The overall organization of the national system, including the effectiveness and reliability of the institutional, procedural and legal arrangements	No	
	(b) Performance of the national system functions	No	
	2. National registry:		
	(a) Overall functioning of the national registry	No	
	(b) Performance of the functions of the national registry and the technical standards for data exchange	No	
	3. ERUs, CERs, AAUs and RMUs and on information on discrepancies reported in accordance with decision 15/CMP.1, annex, chapter I.E, taking into consideration any findings or recommendations contained in the SIAR	No	
	4. Matters related to Article 3, paragraph 14, of the Kyoto Protocol, specifically problems related to the transparency, completeness or timeliness of reporting on the Party's activities related to the priority actions listed in decision 15/CMP.1, annex, paragraph 24, including any changes since the previous annual submission	No	
	5. LULUCF activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol:		

Assessment			*Issue or problem ID#(s) in tables 3 and/or 5*[a]
	(a) Reporting in accordance with the requirements of decision 2/CMP.8, annex II, paragraphs 1–5	No	
	(b) The Party has demonstrated methodological consistency between the reference level and reporting on forest management in accordance with decision 2/CMP.7, annex, paragraph 14	No	
	(c) The Party has reported information in accordance with decision 6/CMP.9	No	
	(d) The Party plans to apply the provisions for natural disturbances to afforestation and reforestation	No	
	(e) The Party plans to apply the provisions for natural disturbances to forest management	Yes	
	(f) Country-specific information has been reported to support provisions for natural disturbances, in accordance with decision 2/CMP.7, annex, paragraphs 33 and 34	No	
	(g) Other issues	No	
CPR	Was the CPR reported in accordance with the annex to decision 18/CP.7, the annex to decision 11/CMP.1 and decision 1/CMP.8, paragraph 18?	Yes	
Adjustments	Has the ERT applied an adjustment under Article 5, paragraph 2, of the Kyoto Protocol?	No	
Response from the Party during the review	Has the Party provided the ERT with responses to the questions raised, including the data and information necessary for the assessment of conformity with the UNFCCC Annex I inventory reporting guidelines and any further guidance adopted by the Conference of the Parties?	Yes	
Recommendation for an exceptional in-country review	On the basis of the issues identified, does the ERT recommend that the next[c] review be conducted as an in-country review?	No	
Question of implementation	Did the ERT list a question of implementation?	No	

Abbreviations: AAU = assigned amount unit, CER = certified emission reduction unit, CPR = commitment period reserve, CRF = common reporting format, ERT = expert review team, ERU = emission reduction unit, LULUCF = land use, land-use change and forestry, NA = not applicable, NIR = national inventory report, QA/QC = quality assurance/quality control, RMU = removal unit, SEF = standard electronic format, SIAR = standard independent assessment report, UNFCCC Annex I inventory reporting guidelines = "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories", Wetlands Supplement = *2013 Supplement to the 2006 Intergovernmental Panel on Climate Change Guidelines for National Greenhouse Gas Inventories: Wetlands*.

[a] The ERT identified additional issues in the energy, IPPU, agriculture, LULUCF and KP-LULUCF that are not specifically listed in table 2 but are included in table 3 and/or 5.

[b] Missing categories, for which methods are provided in the *2006 Intergovernmental Panel on Climate Change Guidelines for National Greenhouse Gas Inventories*, may affect completeness and are listed in annex III to this document.

[c] Owing to the timing of the review of the 2015 annual submission, "next" in this context refers to the review of the 2017 annual submission.

III. Status of implementation of issues and/or problems raised in the previous review report

8. Table 3 compiles all the recommendations made in the previous review report, published on 30 December 2014. For each issue and/or problem, the ERT specified whether it believes the issue and/or problem has been resolved by the conclusion of the review of the 2015 annual submission and provided the rationale for its determination, taking into consideration the publication date of the previous review report and national circumstances.

Table 3
Status of implementation of issues and/or problems raised in the previous review report of Switzerland

ID#	*Issue and/or problem classification*[a, b]	*Recommendation made in previous review report*[c]	*ERT assessment and rationale*
General			
G.1	QA/QC and verification (12, 2014) Adherence to UNFCCC Annex I inventory reporting guidelines	Report the same and correct information in the CRF table summary table 3 and the NIR and improve the QC procedures at the final stage of the inventory compilation process of the annual submission	Resolved. Some discrepancies between the NIR and the information included in CRF summary table 3 are still detected (e.g. the method applied and the EFs used for CO_2, CH_4 and N_2O for transport are reported as "NA" while the emissions from transport have been estimated and reported; during the review, Switzerland explained that the use of "CS" would be more appropriate than "NA"). However, in the NIR (table A-33, annex 6) and during the review, Switzerland described the discrepancies in CRF summary table 3 and also in other tables of the CRF (see table 5, ID#G.8) that the Party had identified before the inventory submission, and explained that they were the result of problems with the CRF Reporter software
G.2	Transparency (13, 2014) Transparency	Improve the transparency of reporting by filling in all requested information on recalculations (explanatory information) and on completeness (information on notation keys) in the CRF tables for all applicable years	Resolved. CRF table 8(b) "Recalculations – explanatory information" is not required in the revised UNFCCC Annex I inventory reporting guidelines. Information on notation keys has been included in CRF table 9 for all the applicable years
G.3	QA/QC and verification (15, 2014)	Make the description of the QA/QC system more transparent by updating	Resolved. Switzerland updated the description in the NIR of national

ID#	*Issue and/or problem classification*[a, b]	*Recommendation made in previous review report*[c]	*ERT assessment and rationale*
	Transparency	section 2.1 of the NIR ("Responsibilities and coordination of QA/QC activities") with relevant information	inventory arrangements that includes the inventory planning, preparation and management. There is a QA/QC officer in charge to oversee the design, the development, and the operation of the quality management system
G.4	QA/QC and verification (15, 2014) Adherence to UNFCCC Annex I inventory reporting guidelines	Confirm that national statistics agencies have implemented adequate QC procedures equivalent to those in table 6.1, chapter 6, volume 1, of the 2006 IPCC Guidelines and report on the progress made in this regard in the NIR	Resolved. During the review, Switzerland explained that the national statistics agency has a system of quality management of the information, whose basic principles are defined in a document (*Charta der Öffentlichen Statistik*). From the analysis of this document the ERT concludes that these principles are consistent with those included in table 6.1, chapter 6, volume 1, of the 2006 IPCC Guidelines
Energy			
E.1	1.A. Fuel combustion – sectoral approach – liquid fuels – CO_2, CH_4, N_2O (23, 2014) Accuracy*	Provide all the necessary documentation to support the recalculations on the update of CO_2 EFs and NCVs for liquid fuels	Resolved. The results of the study reassessing the CO_2 EFs and NCVs for liquid fuels were incorporated into the reporting of the respective emissions by Switzerland. Explanations and references to the sources of the new values are described in NIR chapter 3.2.4.2
E.2	Feedstocks, reductants and other non-energy use of fuels – all fuels – CO_2 (27, 2014) (28, 2013) (46, 2012) Adherence to UNFCCC Annex I inventory reporting guidelines	Disaggregate the reporting of fuels used for non-energy purposes	Resolved. In the 2015 submission, for the first time, fuels used for non-energy purposes are reported on a disaggregated level (chapter 3.2.3 of the NIR)
E.3	1.A. Fuel combustion – sectoral approach – gaseous fuels – CO_2 (28, 2014) Accuracy*	Derive a country-specific CO_2 EF for natural gas and use it in the estimations	Resolved. Country-specific CO_2 EFs were used in CO_2 emission estimations (chapter 3.2.4.4 of the NIR)
E.4	1.A.1.a Public electricity and heat production – other fuels – N_2O (36, 2014) Transparency	Include a table containing the N_2O EFs for municipal waste incineration plants in the NIR, with brief and relevant explanatory information	Resolved. N_2O EFs are described in NIR chapter 3.2.5 and listed in table 3-30

ID#	*Issue and/or problem classification*[a, b]	*Recommendation made in previous review report*[c]	*ERT assessment and rationale*
IPPU			
I.1	2.A.4 Other process uses of carbonates – CO_2 (39, 2014) Transparency	Specify in the NIR that the clay used in brick and tile manufacturing contains limestone and dolomite, thus explaining the allocation of emissions under this category	Resolved. Information provided. Description in chapter 4.2.2.4 was improved
I.2	2.B.2 Nitric acid production – N_2O (40, 2014) (52, 2013) Transparency	Increase the transparency of reporting by including in the NIR information on the N_2O and NO_x EFs for nitric acid production. including their applicability across the time series	Resolved. Information provided. Description in chapter 4.3.2.2 was improved
Agriculture			
A.1	3.B Manure management – CH_4 (46, 2014) Transparency	Report the deep litter animal waste management systems (AWMS) for fattening calves, sheep and goats separately from the solid storage AWMS	Resolved. Information on the use of different manure management systems (MMS) is included in the NIR (chapter 5.3.2). The deep litter MMS is reported separately from the solid storage MMS for fattening calves, sheep and goats. However, owing to the structure of CRF tables 3.B(a) and 3.B(b), the deep litter MMS is reported under the MMS column "other", along with poultry manure
A.2	3.D Direct and indirect N_2O emissions from agricultural soils – N_2O (47, 2014) Comparability	Include the information in the NIR on the comparison between the N_2O emission estimates resulting from the country-specific method and those resulting from the IPCC methodology	Resolved. A comparison table was included in the 2015 NIR, chapter 5.5.4 (table 5-22). In the 2016 submission, the respective table was moved to the QA/QC document Agroscope 2016b (table 12)
LULUCF			
L.1	Land representation – (51, 2014) Transparency	Improve the description of the process that led to the definition of the combination categories for land use and land cover, thereby increasing the transparency with respect to AD in the LULUCF sector	Resolved. Switzerland has included this information in its NIR (chapter 6.2)
L.2	4. General (LULUCF) (52, 2014) Transparency	Provide more accurate ratios of both coniferous and deciduous species in mixed forests and of specific regions, reflecting the release of new national forest inventory data (i.e. ratios derived for specific regions and for the separation between coniferous and deciduous forests)	Resolved. Switzerland has included this information in its NIR (chapter 6.4.2.2)
L.3	4.A.1 Forest land remaining forest land – CO_2 (54, 2014)	Incorporate, in the relevant section of the NIR, more detailed information from the supporting documents and the relevant	Resolved. Switzerland has included this information in its NIR (chapter

ID#	*Issue and/or problem classification*[a, b]	*Recommendation made in previous review report*[c]	*ERT assessment and rationale*
	Transparency	references behind the reasoning for using the value calculated for cropland and permanent grassland for carbon stocks in organic soils under forest land	6.4.5)
L.4	4.A.2 Land converted to forest land – CO_2 (55, 2014) Transparency	Incorporate all necessary information and references in combination with the expert judgement used to support the values reported in the Party's greenhouse gas inventory for the growing stock and changes in the growing stock for afforestation and reflect the realistic dimension for activities reported as afforestation in its national forest inventory	Resolved. Switzerland has included this information in its NIR (table 6-4, chapters 6.4.2.9 and 6.4.4)
L.5	4(I) Direct N_2O emissions from nitrogen inputs to managed soils – N_2O (57, 2014) Transparency	Document all relevant and supporting information on the prohibition on the use of fertilizers, including liming, in forests to cover the whole time series	Resolved. Switzerland has included this information in its NIR (chapter 6.4.2.11)
Waste			
W.1	5. General (waste) – (60, 2014) Transparency	Provide in the NIR additional detailed information related to the original AD sources and to the estimation methods used for the EFs in the waste sector	Resolved. Switzerland explained in NIR table 10-1 that "extended information is given in chp. 7.3.2, 7.4.2 and 7.5.2 in the corresponding sub-section 'Emission factors'". The ERT investigated and found that information has been added to the NIR as mentioned
W.2	5. General (waste) – (61, 2014) Transparency	Provide, in the documentation boxes of the CRF tables, the information on where the emissions and AD have been included for each use of the notation key "IE" for the whole time series	Resolved. When AD or emissions are reported as "IE", Switzerland indicated where they are reported in CRF table 9
W.3	5.C Incineration and open burning of waste – CO_2, CH_4 and N_2O (68, 2014) Transparency*	Provide detailed information on the CO_2, CH_4 and N_2O EFs used for this category in the NIR, as provided in the EMIS comments	Resolved. Information was included in NIR section 7.4.2 and table 10.1
W.4	5.D.1 Domestic wastewater – CH_4 (67, 2014) Transparency	Provide further information on the emissions from the wastewater of the inhabitants not connected to public wastewater treatment plants	Resolved. Switzerland explained about inhabitants not connected to public wastewater treatment in the NIR (page 437 and table 10.1)
W.5	5.E Other (waste) – CH_4 and N_2O (65, 2014)	Improve the documentation in the NIR, standardize the terminology used and provide detailed information on the EFs	Resolved. In the NIR, composting and anaerobic digestion were shifted to 5.B in accordance with the 2006 IPCC

ID#	*Issue and/or problem classification*[a, b]	*Recommendation made in previous review report*[c]	*ERT assessment and rationale*
	Transparency	and descriptions for all sources under the category other (waste) in the NIR	Guidelines. Terminology has been standardized. Only car shredding was left in the category other (waste) and the ERT considers that this is appropriate
KP-LULUCF			
	No recommendations were made in the 2014 annual review report regarding information on activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol		

Abbreviations: AD = activity data, ARR = annual review report, CRF = common reporting format, CS = country specific, EF = emission factor, EMIS = Swiss national air pollution database, ERT = expert review team, IE = included elsewhere, IPCC = Intergovernmental Panel on Climate Change, IPPU = industrial processes and product use, KP-LULUCF = LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, LULUCF = land use, land-use change and forestry, NA = not applicable, NCV = net calorific value, NIR = national inventory report, QA/QC = quality assurance/quality control, UNFCCC Annex I inventory reporting guidelines = "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories", 2006 IPCC Guidelines = *2006 IPCC Guidelines for National Greenhouse Gas Inventories*.

[a] References in parentheses are to the paragraph(s) and the year(s) of the previous review report(s) where the issue was raised. Issues are further classified as defined in decision 13/CP.20, annex, paragraph 81. In the review of the supplementary information reported in accordance with Article 7, paragraph 1, of the Kyoto Protocol, the ERT has applied the classification in decision 22/CMP.1, annex, paragraph 69, in conjunction with decision 4/CMP.11.

[b] An asterisk is included next to each issue type for all issues that are also problems, as defined in decision 22/CMP.1, annex, paragraphs 68 and 69, including those that lead to an adjustment or a question of implementation.

IV. Issues identified in three successive reviews and not addressed by the Party

9. In accordance with paragraph 83 of the UNFCCC review guidelines, and as documented in table 4 below, the ERT has assessed that there are no issues to be included in a prominent paragraph.

Table 4
Issues identified in three successive reviews and not addressed by Switzerland

ID#[a]	*Previous recommendation for the issue identified*	*Number of successive reviews issue not addressed*[b]
General		
	No such general issues were identified	NA
Energy		
	No such issues for the energy sector were identified	NA
IPPU		
	No such issues for the IPPU sector were identified	NA
Agriculture		
	No such issues for the agriculture sector were identified	NA

ID#[a]	*Previous recommendation for the issue identified*	*Number of successive reviews issue not addressed*[b]
LULUCF		
	No such issues for the LULUCF sector were identified	NA
Waste		
	No such issues for the waste sector were identified	NA
KP-LULUCF		
	No such issues for KP-LULUCF activities were identified	NA

Abbreviations: IPPU = industrial processes and product use, KP-LULUCF = LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, LULUCF = land use, land-use change and forestry, NA = not applicable.

[a] An asterisk is included after any issue ID# where the underlying issue is related to accuracy or completeness of a key category, a missing category or a potential key category, as indicated in decision 13/CP.20, annex, paragraph 83.

V. Additional findings made during the 2015 technical review

10. Table 5 contains findings made by the ERT during the technical review of the annual submission of Switzerland that are additional to those identified in table 3 above.

Table 5
Additional findings made during the 2015 technical review of the annual submission of Switzerland[a]

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue*[b] *and/or a problem*[c]*? If yes, classify by type*
General			
G.5	Key category analysis	Switzerland estimates indirect CO_2 emissions (and reports them in CRF table 6) and accounts for them in the national total emissions. However, indirect CO_2 emissions are not included in the key category analysis (NIR, page 451). During the review, the Party confirmed that indirect CO_2 emissions were not included in order to be consistent with the key category analyses previously provided. The ERT is of the view that not including indirect CO_2 emissions in the key category analysis is not in line with UNFCCC Annex I inventory reporting guidelines (decision 24/CP.19, annex, para. 14) The ERT recommends that Switzerland include indirect CO_2 emissions in its key category analysis	Yes. Adherence to UNFCCC Annex I inventory reporting guidelines
G.6	Uncertainty analysis	Switzerland estimates indirect CO_2 emissions (and reports them in CRF table 6) and accounts for them in the national total emissions, but does not include them in the uncertainty analysis (NIR, page 451). During the review, the Party confirmed that they had not been included in the uncertainty analysis, but there are plans to include them in the next annual submission. The ERT is of the view that not including these emissions in the uncertainty analysis is not in line with UNFCCC Annex I inventory reporting guidelines (decision 24/CP.19, annex, para. 15) The ERT recommends that Switzerland include indirect CO_2 emissions in its uncertainty analysis	Yes. Adherence to UNFCCC Annex I inventory reporting guidelines
G.7	Uncertainty analysis	Switzerland estimates the uncertainties by the two approaches indicated in the 2006 IPCC Guidelines, error propagation and Monte Carlo simulation, and presents the results in the NIR for the overall inventory, and by sector. The ERT notes that Switzerland does not explain in the NIR how it uses these results to improve the inventory. During the review, the Party explained that it considers that the uncertainties results improve the emission estimates; it presented, as an example, a project to improve N_2O emission estimates from agriculture, particularly for category 3.D.a (direct N_2O emissions from managed soils), which is the first contributor to the level uncertainty (13.8%; see NIR, page 44, table 1–7) The ERT recommends that Switzerland improve the transparency of its use of the uncertainty analysis to improve the inventory	Yes. Transparency*[c]

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue[b] and/or a problem[c]? If yes, classify by type*
G.8	CRF	The ERT noted some discrepancies between the NIR and the information included in some of the CRF tables (e.g. see ID#G.1, ID#I.8 or ID#W.7). In the NIR (figure 1–2, page 38) and during the review, Switzerland explained that all the data processed within the national air pollution database EMIS are exported to the NIR and to the CRF in a parallel way. In the NIR (page 37) Switzerland also stated that it had detected, before the inventory submission, several discrepancies between the NIR and the CRF tables resulting from the CRF Reporter (the secretariat software for submitting CRF tables), and included in table A-33 of annex 6 to the NIR a non-exhaustive list of issues and errors identified in the use of this software, revealing significant problems resulting from software malfunctions. For example, for the year 2014, in table 10.s.5, SF_6 and NF_3 emissions are not converted to CO_2 equivalent. The Party also explained that, in spite of these differences, it has checked that the numbers included in summary table 2 and in table 6, used to report the emissions and to estimate the assigned amounts, coincide for the entire time series. The ERT noted that Switzerland has been making significant efforts and invests considerable time in solving the problems with the CRF Reporter, and commends the Party for that	Not an issue
G.9	Recalculations	The Party submitted its original 2015 NIR on 27 April 2015. On 7 November 2016 the Party resubmitted the CRF tables of its 2016 submission, indicating that that submission constitutes a resubmission under the Convention and under the Kyoto Protocol for both 2015 and 2016. The ERT noted that the 2015 NIR contains only information on recalculations between the original 2015 submission and the 2014 submission. In an addendum to the 2015 NIR, submitted on 8 April 2016, Switzerland stated that a detailed description of the recalculations (compared with the 2014 submission) for the 2015 and 2016 submissions was provided in the 2016 NIR submitted on 15 April 2016 (chapter 10.1.2). The ERT commends the Party for its detailed and transparent description of the recalculations	Not an issue
Energy			
E.5	1. General (energy sector)	The ERT noted that the energy sector of the NIR is very well structured and transparently describes the approaches followed to estimate emissions. Tier 2 or tier 3 methods are applied for almost all categories. All recommendations from the previous review report were fully resolved. During the review, the ERT received quick and accurate responses to all questions raised. The ERT considers that the above-mentioned observations ensure the high quality of the Swiss energy emissions inventory The ERT commends Switzerland for the high quality of its energy emissions inventory	Not an issue

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue[b] and/or a problem[c]? If yes, classify by type*
E.6	Fuel combustion – reference approach – comparison with international data – other fossil fuels – CO_2	The ERT noted that the CO_2 emissions from other fossil fuels reported in CRF table 1.A(c) for the reference approach are always lower than those for the sectoral approach and in most cases the difference is more than 2%. For example, in 1990 the difference is 3.7%. During the review, Switzerland indicated that the difference is related to the allocation as other fossil fuels in the sectoral approach of fossil liquid fuels that are by-products from the cracking process of feedstocks in the chemical industry Moreover, the ERT noted that the apparent consumption of waste (non-biomass fraction) values reported in CRF table 1.A(b) are systematically smaller (by up to 23%) than IEA values. During the review, Switzerland indicated that the reporting to IEA assumes a 50/50 fossil to renewable fraction, while for the GHG inventory the fossil fraction is based on a detailed analysis of waste composition and measurements in the flue gas of waste incineration plants. The ERT acknowledges that the explanations provided by the Party justify the deviations between the CRF tables and the IEA energy consumption data of other fossil fuels The ERT encourages Switzerland to document in the NIR explanations to justify the deviations between the CRF tables and IEA energy consumption data of other fossil fuels	Not an issue
E.7	Fuel combustion – reference approach – liquid fuels – CO_2	The ERT noted that apparent consumption of other kerosene and refinery feedstock is reported as "NO" in CRF table 1.A(b), while for both fuels apparent consumption data are reported to IEA. During the review, Switzerland indicated that these fuels are included under other oil and crude oil in the CRF table, as reported in pages 579–581 of the NIR The ERT encourages Switzerland to report apparent consumption of other kerosene and refinery feedstock separately in CRF table 1.A(b) or change the reported notation key for other kerosene and refinery feedstock in CRF table 1.A(b) from "NO" to "IE"	Not an issue
E.8	International bunkers and multilateral operations – liquid fuels – CO_2, CH_4 and N_2O	The ERT identified discrepancies between CRF table 1.D and table 1.A(b) for jet kerosene for international aviation bunkers. For example, for 2012, table 1.A(b) reports 63 917.8 TJ, while table 1.D reports 63 627.2 TJ. Minor discrepancies (less than 3 TJ) also occur for gas/diesel oil for international marine bunkers. During the review, Switzerland indicated that these differences are due to updated NCV for kerosene and gas/diesel oil that were not considered in the model for international aviation and navigation. The Party also explained that these issues will be corrected for the next submission The ERT welcomes Switzerland's efforts in addressing this issue and recommends that it transparently report the recalculations of liquid fuel consumption and associated GHG emissions from international bunkers	Yes. Transparency*

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E.9	1.A.1.a Public electricity and heat production – other fuels – CO_2	Switzerland reported in the NIR (page 114) that an oxidation factor of 0.99 is assumed for the combustion of MSW in waste incineration power plants, without including appropriate justification of this assumption. The ERT noted that pursuant to the 2006 IPCC Guidelines an oxidation factor can take a value other than 100% only if it is justified based on measurements or other well-documented data. During the review, Switzerland presented a report published by the environmental administration of the city of Zurich (AWEL, 2009) that investigated the quality of slag in two Swiss MSW incineration plants and determined an oxidation factor in the range of 0.96–0.99. Switzerland also presented an Austrian study about an incineration power plant in Vienna (Oyten, 2004), which is equipped with technology similar to that of the Swiss plants. This study confirms the findings of the AWEL study, as it determines an oxidation factor of 0.989. The ERT acknowledges that the above-mentioned studies justify the oxidation factor for MSW incineration power plants The ERT recommends that Switzerland include in its NIR the additional information to justify the application of 0.99 as the oxidation factor of the combustion of MSW in waste incineration power plants	Yes. Transparency*
E.10	1.A.1.a Public electricity and heat production – other fuels – CH_4	Switzerland reported in the NIR that CH_4 emissions do not occur in waste incineration plants with energy recovery, as confirmed in a study (EMPA, 2013). According to this study CH_4 emission concentrations were very low and below the background concentration of 1.8 ppm for most of the measurements. The ERT acknowledges that the CH_4 emissions could be considered insignificant pursuant to paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines The ERT recommends that Switzerland either estimate and include in the inventory CH_4 emissions from waste incineration based on the above-mentioned study, or report emissions as "NE" instead of "NA" and provide a justification in the NIR, consistent with the UNFCCC Annex I inventory reporting guidelines, that these emissions are considered insignificant	Yes. Completeness*
E.11	1.A.1.b Petroleum refining, 1.A.4 Other sectors, 1.B.2.a Oil all fuels – CO_2, CH_4 and N_2O	Switzerland reported in the NIR (page 117) that it applies a model (tier 3 method) to estimate emissions from petroleum refining. During the review, the Party clarified that it applies a tier 2 approach with a country-specific EF for CO_2 emissions and tier 1 with default EFs from the 2006 IPCC Guidelines for CH_4 and N_2O emissions. The Party also reported that it applies a tier 2 approach to estimate emissions from other sectors (stationary combustion). During the review, the Party clarified that it applies a tier 1 approach with the IPCC default EFs for CH_4 emissions of natural gas and gasoil for boilers and N_2O emissions of all fuels and technologies. Furthermore, the Party reported that it applies a tier 2 approach for fugitive CH_4 emissions from oil transport. During the review, the Party clarified that it applies a tier 1	Yes. Transparency

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue[b] and/or a problem[c]? If yes, classify by type
		approach with the IPCC default EFs The ERT recommends that Switzerland improve the reporting of the level of the tier approach that is applied for petroleum refining, other sectors and oil transport in the NIR	
E.12	1.A.2.a Iron and steel – limestone use – CO_2	Switzerland reported in the NIR (page 128) that about 25% of iron is processed in cupola furnaces using other bituminous coal. The resulting GHG emissions from other bituminous coal are reported under 1.A.2.a. The ERT noted that the operation of the cupola furnaces requires limestone to be added to act as a flux, which results in CO_2 emissions. During the review, the Party confirmed that CO_2 emissions related to limestone use in cupola furnaces is not included in the inventory. Moreover, the Party indicated that these emissions are considered insignificant pursuant to paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines. According to information received from the Swiss Foundry Association the limestone use in cupola furnaces varies between 30% and 50% of the amount of coal. By applying a mean value of 40%, CO_2 emissions were estimated to be 0.41 and 0.39 kt in 2013 and 2014, respectively, below the insignificance thresholds The ERT recommends that Switzerland either estimate and include in the inventory the CO_2 emissions associated with limestone use in cupola furnaces, or report these emissions as "NE", indicate in the documentation box that they are considered insignificant and provide a justification in the NIR, consistent with the UNFCCC Annex I inventory reporting guidelines, that these emissions are considered insignificant	Yes. Transparency*
E.13	1.A.2.d Pulp, paper and print – biomass – CH_4 and N_2O	The ERT noted that Switzerland reported CH_4 and N_2O emissions from the pulp, paper and print category of biomass as "IE" and "NE", respectively, for the years 1990–2008, in CRF table 1.A(a)s2. During the review, Switzerland indicated that no CH_4 and N_2O emissions were estimated for the biomass used as fuel in cellulose production, which was stopped in 2008. The ERT notes that the 2006 IPCC Guidelines contain a method for estimating these emissions The ERT recommends that Switzerland estimate and report CH_4 and N_2O emissions from biomass used as fuel in cellulose production in the period 1990–2008	Yes. Completeness*
E.14	1.A.2.f Non-metallic minerals – biomass – CH_4	The ERT noted that Switzerland reported CH_4 emissions of biomass used as fuel in non-metallic minerals as "NO" for the years 1990–1999 in CRF table 1.A(a)s2. During the review, Switzerland indicated that between 1990 and 1999, biomass was used as a fuel in the cement industry. Given that CH_4 emissions in cement production are based on direct measurements, these emissions are reported aggregately under the fuel type other fossil fuels in the CRF	Yes. Adherence to UNFCCC Annex I inventory reporting guidelines

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue[b] and/or a problem[c]? If yes, classify by type*
		tables	
		The ERT recommends that Switzerland change the reported notation key for CH_4 emissions from biomass used as fuel in non-metallic minerals from "NO" to "IE" for the years 1990–1999 and explain where the emissions are reported	
E.15	1.A.3.b Road transportation – biomass – CO_2, CH_4 and N_2O	Switzerland reported in the NIR (page 82) that the NCV of biodiesel is assumed to be equal to diesel. However, the ERT noted that according to international scientific literature, the NCV of biodiesel is around 10% lower than fossil diesel. Therefore, there is a small overestimation of road transportation emissions from biomass for CO_2 (memo item), CH_4 and N_2O for each year in the period 1997–2014. During the review, Switzerland indicated that an update of the road transportation model is ongoing, in which all parameters will be checked, including NCV of all fuels	Yes. Accuracy*
		The ERT welcomes Switzerland's efforts in addressing this issue and recommends that the Party estimate accurately CO_2, CH_4 and N_2O emissions from biodiesel used in road transportation	
E.16	1.A.3.b.i Cars – 1.A.3.b.ii Light duty trucks gasoline and diesel – N_2O	Switzerland estimates N_2O emissions from gasoline and diesel for passenger cars and light duty vehicles by a tier 3 method, which is a territorial emission model with EFs from HBEFA ("Handbook of emission factors").[d] Switzerland reported in the NIR (page 561) that "for N_2O, no cold start emissions or evaporative emissions are taken into account due to lack of data." During the review, Switzerland indicated that HBEFA does not contain a specific N_2O EF for cold start. The Party also indicated that the ongoing update of the road transportation model will (a) integrate a new model for cold start emissions; and (b) review the EF for N_2O (and other not-limited substances). Switzerland indicated that cold start emissions will be integrated into the GHG inventory as soon as the new model version becomes available	Yes. Transparency*
		The ERT noted that the 2006 IPCC Guidelines provide a methodology for estimating N_2O cold start emissions (table 3.2.5/page 3.24/volume 2) and that by not reporting these emissions the Party is underestimating its Annex A emissions for the entire time series. Therefore, the ERT included this issue in the list of potential problems and further questions raised by the ERT	
		In response, the Party provided revised estimations for N_2O cold start emissions for passenger cars and light-duty trucks by applying the latest version of the COPERT model's EFs from *EMEP/EEA Air Pollutant Emission Inventory Guidebook – 2013*.[e] The ERT agrees that the methodology applied by the Party to estimate N_2O cold start emissions resolves the underestimation. The revised estimates increase N_2O emissions by 0.01 kt CO_2 eq, 14.67 kt	

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		CO_2 eq and 14.47 kt CO_2 eq for 1990, 2013 and 2014, respectively	
		The ERT recommends that Switzerland explain the calculation of N_2O emissions from cold start in road transportation in its NIR	
E.17	1.A.3.b.ii Light duty trucks – diesel – N_2O	The ERT noted that Switzerland reported N_2O emissions from light duty trucks of diesel as "NO" for the years 1990–1995 in CRF table 1.A(a)s3. During the review, Switzerland indicated that during these years the N_2O EF is 0 (zero). The ERT confirmed that this explanation is consistent with table 3.2.5 of the 2006 IPCC Guidelines for pre-Euro light duty vehicles and the proportion of vehicle fleet meeting certain emission standards estimated by the European Environment Agency[f]	Yes. Adherence to UNFCCC Annex I inventory reporting guidelines
		The ERT recommends that Switzerland change the reported notation key for N_2O emissions of diesel from "NO" to "NA" for the years 1990–1995	
E.18	1.B.2.b Natural gas – gaseous fuels – CO_2 and CH_4	Switzerland reported in the NIR (pages 184–186) that CO_2 and CH_4 default EFs (upper value of the proposed range) from the 2006 IPCC Guidelines are applied for natural gas production for the years 1990–1994 (the only production site was closed in 1994). The ERT noted that CO_2 emissions were reported as "NA" for the years 1990–1994 and that CH_4 emissions were underestimated by a factor of 1000 (the Party used 8.2E-08 Gg per 10^6 m^3 gas production and 2.3E-06 Gg per 10^6 m^3 gas production, respectively, as the CO_2 and CH_4 EFs, while the default IPCC EFs are 8.2E-05 Gg per 10^6 m^3 gas production and 2.3E-03 Gg per 10^6 m^3 gas production, respectively)	Yes. Accuracy*
		The ERT recommends that Switzerland recalculate CO_2 and CH_4 emissions of natural gas production for the years 1990–1994 by using EFs in line with the 2006 IPCC Guidelines	
E.19	1.B.2.c Venting and flaring – natural gas – CO_2, CH_4 and N_2O	The ERT noted that CO_2, CH_4 and N_2O emissions from flaring of natural gas are reported as "NE" in CRF table 1.B.2, although there was one production plant in Switzerland in operation from 1985 to 1994. During the review, Switzerland confirmed that flaring from natural gas production (1990–1994) was not estimated	Yes. Completeness*
		The ERT recommends that Switzerland estimate and report CO_2, CH_4 and N_2O emissions from flaring of natural gas by using a methodology consistent with the 2006 IPCC Guidelines	
IPPU			
I.3	2. General (IPPU) – CO_2	Switzerland estimates indirect CO_2 emissions from the atmospheric oxidation of NMVOC and CO and reports them in chapter 9 of the NIR and in CRF table 6, indicating that they have been estimated excluding NMVOC and CO emissions from biogenic origin and	Yes. Transparency*

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		emissions already included as direct (CO_2) emissions to avoid double counting. However, the ERT considers that Switzerland does not report the methodologies used to estimate indirect emissions from the IPPU sector with sufficient documentation in its NIR. During the review, Switzerland explained that the indirect CO_2 emissions from IPPU originate from mineral products (from blasting operations) and from steel production. The Party also explained that these emissions are estimated using a carbon mass balance approach The ERT recommends that Switzerland improve the transparency of the reporting of indirect CO_2 emissions from the IPPU sector by including detailed information on the AD and methodology used for the estimation	
I.4	2. General (IPPU) – HFCs, PFCs and SF_6	In annex 5 to the NIR it is mentioned that measurements from Jungfraujoch research station are used to verify Swiss emissions of HFCs and SF_6. In the same annex, in section "Results and conclusions", it is stated that measurement data are used as input to inventory estimates. During the review, Switzerland clarified that the data measured at the station are not used for the inventory estimates but for verification, by identifying discrepancies, which in turn lead to a reassessment of the corresponding part of the inventory and to the evaluation of options for further improvements of the inventory The ERT recommends that the Party improve the description of the role of the data from Jungfraujoch research station as a provider of verification data, not the input data for the inventory	Yes. Transparency
I.5	2.C.1 Iron and steel production – CO_2	The ERT noted that on page 218 of the NIR it is mentioned that 25% of iron is processed in cupola furnaces and these CO_2 emissions are reported in the energy sector in category 1.A.2.a. During the review, the ERT asked the Party to clarify why these emissions are not reported in category 2.C.1. Switzerland explained that other bituminous coal used in cupola furnaces acts first of all as fuel, but also as carburization material and reductant. Therefore the Party chosen to report the CO_2 emissions from coal under category 1.A.2.a The ERT recommends that Switzerland either reallocate process emissions from iron processing in cupola furnaces from category 1.A.2.a to category 2.C.1 iron and steel production or, if that split is not possible, report these emissions as "IE" under category 2.C.1 and explain where they are reported	Yes. Comparability*
I.6	2.C.3 Aluminium production – CO_2	In chapter 4 of the NIR Switzerland reports direct CO_2 emissions from aluminium production estimated using a country-specific EF obtained on the basis of the anode consumption in the electrolysis process. Moreover, as reported in the NIR (page 220), "It is assumed that the anode consisted completely of carbon and that it was fully oxidized during the process". On	Yes. Transparency*

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		the other hand, in chapter 9 of the NIR, the Party presents indirect CO_2 emission estimates from aluminium production, based on CO and NMVOC monitoring data obtained in the stacks of the aluminium foundries	
		The ERT considers that the carbon content of the CO measured in the stack of the aluminium foundries may have been accounted for in the estimation of the direct CO_2 emissions, and for this reason the inclusion of indirect CO_2 emissions would represent a double counting and, as a result, a potential overestimation of Switzerland's Annex A emissions for the base year. The ERT included this issue in the list of potential problems and further questions raised by the ERT	
		In response to this list, Switzerland submitted revised estimates on 7 November 2016. In these estimates the Party did not include indirect CO_2 emissions from the oxidation of the CO generated in aluminium production. (The Party explained that indirect CO_2 emissions from the oxidation of NMVOC in aluminium production are still reported because the NMVOC emissions originate solely from the production of the electrodes at the plants and the resulting indirect emissions are not reported as direct CO_2 emissions (i.e. no double counting for NMVOC occurs)). The revised estimates for 1990 for indirect CO_2 are 5.47 kt CO_2 eq lower than the original estimates (no impact for 2013 or 2014 because aluminium production stopped in 2006)	
		The ERT recommends that the Party explain how indirect CO_2 emissions from aluminium production are estimated and how it ensures that there is no double counting of emissions between the direct and indirect CO_2 in its NIR	
I.7	2.C.3 Aluminium production – PFCs	It is mentioned on page 220 of the NIR that Switzerland applied a "general reduction factor" for the PFC EF. The applied factor for CF_4 (0.036 kg/t in 2014) is significantly lower than the IPCC default (0.4–1.6 kg/t). During the review, the Party clarified that the reduction factor is based on measurements and a comparison with data from the industry and that the same factor was used for the earlier years of the time series (without measurements). The company closed down and there has been no primary aluminium production since 2007. It is not possible to reproduce data and the factor does not have any impact on the present and future inventories	Yes. Transparency*
		The ERT recommends that the Party include in its NIR, to the extent possible, more detailed information on the analysis of the measurements resulting in a lower EF for PFC emissions from aluminium production	

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I.8	2.C.3 Aluminium production – HFCs, PFCs and SF_6	The ERT noted that on page 221 of the NIR it is mentioned that use of SF_6 in aluminium foundries is reported in 2.C.4 Magnesium foundries. However, in CRF table 2(II)B-Hs1, for 2005, emissions from aluminium (0.77 t) and magnesium (1.60 t) are reported separately. During the review, the Party clarified that the description in the NIR corresponds to the 2006 IPCC Guidelines to report the applications of SF_6 in aluminium foundries under magnesium foundries, but the final CRF version provides information separately. However, the ERT noted that the CRF tables have been produced with separate information, so the information of the NIR is not consistent with the information reported by the Party in the CRF tables The ERT recommends that Switzerland correct the description of the allocation of SF_6 emissions from aluminium foundries in 2005 in the NIR to ensure consistency with the CRF tables	Yes. Transparency*
I.9	2.E.1 Integrated circuit or semi-conductor – PFCs	In CRF table 2(II)B-Hs1 for 2014, Switzerland reported 1.28 t CF_4 consumption and 1.34 t CF_4 emissions (before recovery). The ERT noted that the emissions of CF_4 are higher than the consumption. During the review, the Party explained that some of the CF_4 emitted is the result of transformation of other F-gas species (e.g. C_2F_6). However, the ERT noted that, for the gases listed in that CRF table, consumption equals emissions (except for CF_4) and therefore nothing seems to be transformed into CF_4. It is not clear to the ERT which substances are consumed (and thus not emitted) to produce CF_4 The ERT recommends that Switzerland explain in detail how PFC emissions (especially CF_4 emissions) from integrated circuits or semiconductors originate, including which species are converted into other species	Yes. Transparency*
I.10	2.F.1 Refrigeration and air conditioning – HFCs, PFCs	On page 238 of the NIR it is mentioned that import data for commercial and industrial refrigeration equipment have been available for Switzerland and Liechtenstein separately only since 2008. For 1991–2007, all imports (into Liechtenstein and Switzerland) are reported under the Swiss inventory (no emissions occur for commercial and industrial refrigeration for 1990) The ERT recommends that Switzerland exclude Liechtenstein when estimating HFC and PFC emissions from commercial and industrial refrigeration in the period 1991–2007	Yes. Accuracy*
I.11	2.F.1 Refrigeration and air conditioning – HFCs and PFCs	The ERT noted that HFC and PFC emissions from commercial and industrial refrigeration are reported together. During the review, Switzerland clarified that the modelling of refrigerant use is done using a top-down approach starting with the total volume of refrigerant import. The total amount of refrigerant is split into different subcategories. The split is done as far as possible using equipment data, for example, statistics and equipment parameters of heat	Yes. Comparability*

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		pumps, stationary air-conditioning equipment, mobile air-conditioning equipment and transport refrigeration However, statistics on industrial and commercial equipment are not complete and the remaining import of refrigerant (total import minus identified amount used in equipment) is assumed to be used for commercial and industrial refrigeration. The Party also clarified that sufficient statistics are not available for a split between commercial and industrial refrigeration. A split based on assumptions (for example based on results in neighbouring countries) might lead to false interpretations of subcategories. The ERT also noted that Switzerland has not reported estimates or notation keys for industrial refrigeration. During the review, the Party explained that the notation keys could not be reported owing to problems with the CRF Reporter The ERT recommends that Switzerland continue its efforts to acquire statistical data to allow the reporting of emissions to be split between industrial and commercial refrigeration or, if this is not possible, report the appropriate notation key "IE" for HFC and PFC emissions from industrial refrigeration with the information that emissions from that category are reported under commercial refrigeration	
I.12	2.F.1 Refrigeration and air conditioning – HFCs and PFCs	Switzerland reported in table 4-36 of the NIR the assumptions made to estimate HFC and PFC emissions from refrigeration and air conditioning. The ERT noted that the product life EF for mobile air conditioning for cars is lower than the lowest value given in the 2006 IPCC Guidelines (p.7.52, table 7.9). A similar situation was identified with the product life factor for mobile air conditioning for trains (5%), while the 2006 IPCC Guidelines give a range of 10–20%. In transport refrigeration wagons have a product life EF of 10%, while the range in the 2006 IPCC Guidelines is 15–50%. During the review, the Party clarified that the annual loss of 8.5% for mobile air conditioning in cars corresponds to the average found in a German study titled "Emissionen des Kältemittels R 134a aus mobilen Klimaanlagen" and lies within the range of 5.3–10.6% mentioned in a footnote in the 2006 IPCC Guidelines for second generation mobile air conditioners installed in European models in 1996 and beyond. Transport refrigeration values are based on interviews with relevant companies; differences in relation to the IPCC values might result from newer vehicles and equipment and the standard of living in Switzerland. The EF of trains is a result of the reported consumption of F-gases for service of equipment and a calculation of total stock The ERT recommends that Switzerland improve the description of the assumptions made in the estimates for HFC and PFC emissions from refrigeration and air conditioning (2.F.1), especially for parameters that are not within the range given by the 2006 IPCC Guidelines	Yes. Transparency*

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Agriculture			
A.3	3. General (agriculture)	In CRF table summary 3s2, Switzerland indicated only default EFs for N_2O emissions from manure management and agricultural soils and a combined application of country-specific and tier 1b methods for the agricultural soils category. However, the ERT noted that a country-specific N_2O EF is applied to estimate indirect N_2O emissions from manure management and from agriculture soils and that it corresponds to the tier 2 methodology for agricultural soils	Yes. Adherence to UNFCCC Annex I inventory reporting guidelines
		The ERT recommends that Switzerland correct the information on methodologies and EFs for N_2O emissions from manure management and agricultural soils in CRF table summary 3s2 to make it consistent with the EFs and methodologies actually used in the estimations	
A.4	3.A.4 Other livestock – CH_4	In the NIR (page 272) it is stated that gross energy for buffalo, camels and deer is estimated from data on dry matter intake taken from a literature source (Flisch et al., 2009). However, it is not clear to the ERT how these data on dry matter intake are derived and converted to gross energy. During the review, Switzerland explained that dry matter intake is based on feeding trials or derived from similar animal species and was converted to gross energy with multiplication by 18.45 MJ/kg	Not an issue
		The ERT encourages Switzerland to provide short relevant explanations of the methods used to estimate dry matter intake and gross energy for buffalo, camels and deer	
A.5	3.B Manure management – N_2O	Nitrogen excretion (Nex) rates used by Switzerland for all animal categories are based on country-specific data (Kupper et al., 2013). However, for some animal categories (e.g. growing cattle, buffalo, goats), default tier 2 estimations in accordance with the 2006 IPCC Guidelines are higher than the estimates using country-specific values: for growing cattle by about 27% (42.4 and 33.4 kg N/head/year, respectively), for buffalo by over 60% (59.4 and 36.4 kg N/head/year, respectively) and for sheep by 13% (9.6 and 8.5 kg N/head/year, respectively). During the review, Switzerland provided detailed explanations that support the usage of country-specific values	Not an issue
		The ERT encourages Switzerland to provide a short comparison of country-specific Nex rates for all animal categories to default values estimated in accordance with tier 2 of the 2006 IPCC Guidelines in the QA/QC section of the NIR with relevant explanations of deviations	
A.6	3.B.4 Other livestock – CH_4	Switzerland applied a default volatile solid (VS) excretion value (1.72 kg/head/day) from the Revised 1996 IPCC Guidelines to estimate CH_4 emissions from manure management of horses with the explanation that the default value from the 2006 IPCC Guidelines	Yes. Transparency*

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		(2.13 kg/head/day) had been considered as not appropriate. During the review, Switzerland clarified that the default value from the Revised 1996 IPCC Guidelines is slightly closer to the preliminary national estimations of VS (1.90 kg/head/day), developed using equation 10.24 from the 2006 IPCC Guidelines The ERT recommends that Switzerland provide relevant supporting information in the NIR on the choice of the VS value used to estimate CH_4 emissions from manure management of horses	
A.7	3.D.a.3 Crop residues – N_2O	In accordance with the 2006 IPCC Guidelines, crop residues on pastures should be included in the estimations of N_2O emissions from agricultural soils only for the years when renewal of pastures happened (default is once every three years). However, Switzerland calculates nitrogen input with crop residues from the total area of pastures for every year in the period 1990–2014. During the review, Switzerland explained that renewal of pasture (in contrast to leys and intensive meadows) is not very common and annual estimates include field losses from feed not eaten by the animals and due to trampling effects The ERT recommends that Switzerland provide relevant explanations on the assumptions used to estimate nitrogen input from crop residues on pastures in the NIR	Yes. Transparency*
A.8	3.D.a.5 Mineralization/ immobilization associated with loss/gain of soil organic matter – N_2O	In its NIR (page 306) Switzerland states that direct N_2O emissions from mineralization of soil organic matter was estimated from all carbon losses. Carbon losses were assessed on a land use subcategory level without taking carbon gains into account. However, it is not clear to the ERT whether net or gross carbon losses are used. During the review, Switzerland proved that annual net carbon losses due to the change of land use or change of management practice were used and that it is in line with the 2006 IPCC Guidelines The ERT recommends that Switzerland provide in the NIR a clear indication on the usage of net carbon losses to estimate direct N_2O emissions from mineralization of soil organic matter	Yes. Transparency*
A.9	3.G Liming – CO_2	In order to estimate CO_2 emissions from liming Switzerland assumes that only lime is applied (i.e. no dolomite used). However, in the NIR there is no supporting documentation for that assumption. During the review, Switzerland indicated that some dolomite is used. The ERT believes that this issue should be considered further in future reviews to confirm there is not an underestimate of emissions The ERT recommends that Switzerland estimate CO_2 emissions from liming taking into account the limestone and dolomite used	Yes. Accuracy*

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LULUCF			
L.6	Land representation	According to the 2006 IPCC Guidelines, owing to some unique characteristics of the AFOLU sector with respect to developing inventory methods, anthropogenic GHG emissions and removals by sinks are defined as all those occurring on managed land. Managed land and unmanaged land in this sense are not defined in Switzerland's NIR. The ERT noted that it is good practice for countries to quantify, and track over time, the area of unmanaged land (page 1.5 of chapter 1, volume 4, of the 2006 IPCC Guidelines; see also page 3.5 of chapter 3, volume 4). In response to a question by the ERT, Switzerland reported that it considered all its land managed The ERT recommends that Switzerland clarify in the NIR that all its lands are managed, or provide its definition of managed and unmanaged land and their areas over time	Yes. Transparency*
L.7	Land representation	Switzerland has applied a remote-sensing based approach 3 method to identify land use and land-use change. The ERT notes that these methods may correctly identify land cover and land cover change, but in order to accurately identify land use and land-use change, additional information (e.g. direct field observation) is required. The ERT further notes that care needs to be taken in inferring land use from the land cover characteristics and vice versa (page 3.5, chapter 3, volume 4, 2006 IPCC Guidelines). During the review, Switzerland explained that it can identify land use and land-use change accurately, even using aerial photographs, primarily because of the availability of a sufficiently long time series of sufficiently high resolution aerial photographs together with the availability of information on land use of various land units. National experts use this additional information to verify the actual land use of a unit in a given year, when they deem necessary. As stated by the Party during the review, such information could include the legal status of land use categories (e.g. forest land) that may require reporting a specific land parcel under a land use category in a given year in the inventory time series In order to increase the transparency of the information on the identification of IPCC land use categories, the ERT recommends that the Party improve the description of the identification of the country-specific combination categories (i.e. land use and land-use change categories that are more detailed than those defined by the 2006 IPCC Guidelines)	Yes. Transparency
L.8	Land representation	Switzerland's NIR uses the term "afforestation" also to refer to areas under the land converted to forest land category for its reporting under the Convention. However, the ERT notes that "afforestation" (together with "reforestation") are terms used specifically to denote areas subject to afforestation/reforestation activities under Article 3, paragraph 3, of the	Yes. Transparency

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue[b] and/or a problem[c]? If yes, classify by type
		Kyoto Protocol and that the correct terminology to be used for the reporting on such areas under the Convention is land converted to forest land	
		In order to enhance the transparency of the reporting, the ERT recommends that Switzerland use the term "afforestation" in the NIR only when referring to a conversion from land to forest land that corresponds to the Swiss definition for afforestation activities under Article 3, paragraph 3, of the Kyoto Protocol as defined in its report to facilitate the calculation of its assigned amount pursuant to Article 3, paragraphs 7 and 8, for the first commitment period of the Kyoto Protocol[g]	
L.9	4. General (LULUCF) – CO_2	According to the NIR (pages 328–329), Switzerland applies the gain-loss method to estimate carbon stock changes in organic soils. However, Switzerland does not report the definition of organic soils, which is important for the identification of land under organic soils. According to the 2006 IPCC Guidelines, in order to correctly estimate the area under organic soils and to match AD with carbon stock, emission and removal factors and other relevant data, it is good practice to provide an explicit country-specific definition of organic soils (step 2 in section 1.3.4, chapter 1, and section 3.4, chapter 3, of volume 4 of the 2006 IPCC Guidelines)	Yes. Transparency*
		The ERT recommends that the Party transparently report its definition of organic soils to estimate and report the carbon stock changes in organic soils	
L.10	4. General (LULUCF) – CO_2	To estimate carbon stock changes in the different land use categories, Switzerland applies both the stock difference and the gain-loss method described in the 2006 IPCC Guidelines. The NIR provides information on the adaptation of the IPCC equations by Switzerland (pages 327–328 of the NIR) together with a summary of the method used for each pool and land use category (or subcategory)	Yes. Transparency*
		However, the ERT notes that for the land use conversion subcategories (e.g. forest land converted to cropland), the equations do not clearly indicate whether the area used in the calculations ($A_{i,ba}$) is the total area of the subcategory (which is the sum of the areas converted in the last 20 years) or whether it is the area converted in the inventory year. In response to a request from the ERT, Switzerland provided transparent information on the calculations, including both the areas and the implied EFs by land-use change and pool category reported in the CRF tables, which the ERT found to be correct	
		The ERT recommends that Switzerland improve the transparency of the description of the equations used for calculations in the NIR by clarifying the meaning of areas ($A_{i,ba}$) used in the equations	

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue[b] and/or a problem[c]? If yes, classify by type*
L.11	4.A Forest land – CO_2	In order to estimate CO_2 emissions from drained organic soils, Switzerland has conservatively assumed all of its organic forest soils to be drained (i.e. considering it to be an overestimation of emissions) owing to a lack of nationwide survey data on the extent of drainage of forest area with organic soils. The ERT, however, notes that according to the 2006 IPCC Guidelines, good practice inventory estimates are accurate in the sense that they are systematically neither overestimates nor underestimates, as far as can be judged, and that uncertainties are reduced as far as practicable In order to enhance the accuracy of the estimates of emissions and removals from forest land, the ERT recommends that Switzerland identify the areas of drained organic soils in forests accurately by collecting data on areas of organic soils under forest land affected by past draining activities	Yes. Accuracy*
L.12	4.A Forest land – CO_2	Switzerland used the soil carbon model Yasso07 to estimate carbon stock changes in mineral soils, dead wood and litter in productive forests (combination category CC12). In response to a question by the ERT as to whether this model is able to capture potential emissions from soils due to harvest (e.g. erosion of soil) and regeneration (e.g. soil preparation), Switzerland replied that the model is expected to capture most, but not all, such emissions. The Party further explained that emissions from soils due to harvest in Switzerland are minimal because forest management in the country generally avoids harvesting using clearcuts and does not involve artificial regeneration. Furthermore, in the mountainous region of Switzerland, forests are managed strictly following defined guidelines (NAIS) to maintain and improve their protective function against disturbances such as avalanches and landslides. Management interventions in such forests are thus minimal and occur only to maintain or improve their protective function, and, as a consequence, emissions from soil are minimized in the case of management interventions and also in the case of natural disturbance as the protection of the forests themselves serves to minimize the occurrence of natural disturbances. In response to another question by the ERT on the parameters used in the application of model Yasso07 to Switzerland, the Party further clarified that, although the parameters applied were taken from a global data set, they are adequately representative of the biophysical conditions of Switzerland. However, the ERT notes that more extensive validation of the model outputs using measured data might help to reduce the uncertainty of the estimation of carbon stock changes. The ERT notes in this regard that the planned improvements include an evaluation of a new version of the model which might require further or repeated validation The ERT encourages the Party to continue its efforts to validate (and if possible, better adapt) the parameter sets applied, and to include this information in the NIR to increase the	Not an issue

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue[b] and/or a problem[c]? If yes, classify by type*
		transparency of the description of the above-mentioned model	
		The ERT notes that if the new version of the model produces more accurate results than the previous version and the Party decides to use it in its estimates, the new version should be applied consistently over time	
L.13	4.A.1 Forest land remaining forest land – CH_4 and N_2O	The ERT noted that Switzerland, in its response to issue ID#W.12, reallocated CH_4 and N_2O emissions from open burning of residues from forests from category 5.C.2 (open burning of waste) in the waste sector to category 4(V).A.1 controlled burning in forest land remaining forest land (CRF table 4(V) biomass burning under the LULUCF sector)	Yes. Transparency*
		The ERT recommends that Switzerland explain the reallocation of CH_4 and N_2O emissions from open burning of residues from forests from category 5.C.2 (open burning of waste) in the waste sector to category 4(V).A.1 (controlled burning in forest land remaining forest land) (CRF table 4(V) biomass burning under the LULUCF sector) in its NIR	
Waste			
W.6	5. General (waste)	Switzerland has reported the memo items long-term storage of C in waste disposal sites, annual change in total long-term C storage and annual change in total long-term C storage in HWP waste as "NE" in CRF table 5, but the Party has not provided any information in the documentation box of that CRF table or in the NIR	Not an issue
		The ERT encourages Switzerland to estimate and report long-term storage of C in waste disposal sites, annual change in total long-term C storage and annual change in total long-term C storage in HWP waste in CRF table 5	
		If Switzerland continues to report long-term storage of C in waste disposal sites, annual change in total long-term C storage and annual change in total long-term C storage in HWP waste as "NE" in CRF table 5, the ERT encourages the Party to provide appropriate information in the documentation box of CRF table 5 and in its NIR	
W.7	5.A Solid waste disposal on land – CH_4	Switzerland has reported using a tier 1 method to estimate CH_4 emissions from category 5.A (NIR section 7.2.2). The Party has reported the method applied as "country-specific, default" in CRF table summary 3s2. During the review, Switzerland explained that these emissions are estimated using country-specific AD and historical waste deposits at SWDS since 1930. The ERT considers that by using country-specific AD and well-documented historical data of SWDS, Switzerland's method can be identified as tier 2 according to the 2006 IPPC Guidelines	Yes. Transparency

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue[b] and/or a problem[c]? If yes, classify by type*
		The ERT recommends that Switzerland report the correct tier for the methodology used to estimate CH_4 emissions from solid waste disposal on land in CRF table summary 3s2 and in its NIR	
W.8	5.B.1 Composting – CH_4	During the review, Switzerland explained that it estimated the CH_4 emissions from composting using AD from the interpolation and extrapolation (to 2020, based on assumptions about population growth) of the existing AD for the years 1990–2002 and 2008. The ERT considers that the AD for composting were calculated by projection to 2020 with two points from the years 1990–2002 and 2008, respectively, and that an extrapolation based on an assumed population growth may not be accurate owing to limited data for the most recent year in supporting the projection	Yes. Accuracy*
		Since emissions from the biological treatment of solid waste (5.B) is a key category, the ERT recommends that Switzerland review and, if necessary, revise, the AD for composting and demonstrate that they are accurate by providing supporting documentation in the NIR	
W.9	5.B.2 Anaerobic digestion at biogas facilities – CH_4	Switzerland estimated CH_4 emission losses from each biogas facility using a new EF of 1.23 t CH_4 per facility per year based on a study titled "Biological treatment of solid waste 2015" (FOEN, 2015n). During the review, Switzerland provided information on the study, which was based on research and measurement. The result showed that the CH_4 emission leak from agricultural storage of anaerobic digestion was not dependant on the amount of biogas production. The average of emission leaks was analysed and therefore the average value of the studied facilities (1.23 kt CH_4 per year) was used for the loss of CH_4 from agricultural and industrial biogas per facility. The ERT commends Switzerland on its EF development through the application of a research study	Yes. Transparency*
		However, to increase transparency in the NIR, the ERT recommends that Switzerland explain in more detail how it obtained the country-specific EF for CH_4 losses from biogas facilities in its NIR	
W.10	5.C Incineration and open burning of waste – CH_4 and N_2O	Switzerland estimated CH_4 and N_2O emissions from incineration and open burning of waste using the AD in NIR table 7-15, but no explanation of sources and details of data acquisition are reported. During the review, Switzerland provided the ERT with detailed information, by type of waste, on the data used to estimate CH_4 and N_2O emissions from the incineration and open burning of waste, including definition, sources and references	Yes. Transparency*
		In order to improve transparency of the AD, the ERT recommends that Switzerland provide a more detailed explanation of the source, data acquisition and references of the AD, by type of waste, used to estimate CH_4 and N_2O emissions from incineration and open burning of waste	

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue[b] and/or a problem[c]? If yes, classify by type*
W.11	5.C.2 Open burning of waste – CH_4 and N_2O	Switzerland estimated the CH_4 and N_2O emissions from open burning of waste, including open burning of agricultural residues, both in the NIR and in CRF table 5.C (reported under subcategory 5.C.2 other (natural residues)). According to the 2006 IPCC Guidelines, emissions from agricultural residue burning are considered in the cropland category (chapter 5, volume 4, 2006 IPCC Guidelines). During the review, Switzerland explained that the natural agricultural residues burned off-site were the fallen fruit trees, part of diseased residue, cut up and collected, and that these residues are different from the residues burned on site. The ERT notes that the 2006 IPCC Guidelines mention that "Municipal waste is generally defined as waste collected by municipalities or other local authorities. However, this definition varies by country. Typically, MSW includes: Household waste, garden (yard) and park waste and commercial/institutional waste". The ERT considers that the agricultural residues based on the explanation from Switzerland can be considered as country-specific waste The ERT recommends that Switzerland identify in its NIR the definition of natural agricultural residue waste as a country-specific type of waste in Switzerland or national waste, as allowed by the definition of MSW in the 2006 IPCC Guidelines	Yes. Transparency*
W.12	5.C.2 Open burning of waste – CH_4 and N_2O	Switzerland has reported CH_4 and N_2O emissions from open burning of residues from forests under the waste sector (category 5.C.2 Open burning of waste, subcategory other (natural residues)). During the review, Switzerland explained that the forest residues are the residues collected from forest activities which are then burned off-site. The ERT notes that the CO_2 emissions from both on-site and off-site burning of biomass in forest land have been correctly included in the carbon stock changes in the biomass pool and thus reported under the category 4.A: forest land in the LULUCF sector (in accordance with the 2006 IPCC Guidelines). The ERT also notes that CO_2 as well as non-CO_2 emissions from burning of forest biomass in both controlled burning and in wildfires are to be reported in the LULUCF sector, CRF table 4(V) "Biomass burning". The ERT further notes that forest residues are not typically considered waste materials but unused forest biomass. The ERT considers that CO_2 and non-CO_2 emissions arising from burning of the same biomass should be allocated to the same category. The ERT further notes that the definition of other waste in section 2.2.4 of chapter 2 in volume 5 of the 2006 IPCC Guidelines does not include forest residues The ERT thus considers that CH_4 and N_2O emissions from the open burning of forest residues should be reported in the LULUCF sector, in the category forest land, controlled burning, in CRF table 4(V). The ERT considers that reporting these emissions in the waste sector may result in an overestimation of the Party's Annex A base-year emissions and, as a result, the	Yes. Transparency

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue[b] and/or a problem[c]? If yes, classify by type*
		Party's assigned amount. The ERT included this issue in the list of potential problems and further questions raised by the ERT	
		Switzerland, in its response to this list, submitted revised estimates on 7 November 2016. In these estimates, Switzerland reallocated the CH_4 and N_2O emissions from open burning of residues from forests from the waste sector (category open burning of waste, subcategory other (natural residues)) to the LULUCF sector (category biomass burning, forest land remaining forest land, controlled burning, residues from forestry). As a result of this revision, 6.45 kt CO_2 eq, 2.62 kt CO_2 eq and 2.63 kt CO_2 eq of CH_4 and N_2O emissions (combined) were reallocated from the waste sector to the LULUCF sector for 1990, 2013 and 2014, respectively. The ERT considers that the revised estimates resolved the issue raised by the ERT during the review week	
		The ERT recommends that Switzerland explain the reallocation of CH_4 and N_2O emissions from open burning of residues from forests in the NIR	
W.13	5.C.2 Open burning of waste (biogenic)	The ERT noted some inconsistencies in AD between NIR table 7-15 and CRF table 5.C on the amount of natural residues from agriculture and forest in open burning for the whole time series. During the review, Switzerland mentioned that an error occurred when entering the data in the CRF table. The amount of AD in the CRF table should read the value of the AD in NIR table 7-15 (e.g. for 1990, CRF table 5.C indicates 22.54 kt while NIR table 7-15 indicates 16.5 kt and 28.8 kt for agriculture and forestry, respectively). Nevertheless, the values for the emissions in CRF table 5.C are correct	Yes. Transparency
		To increase consistency between the NIR and the CRF tables, the ERT recommends that Switzerland correct the AD reported in table 5.C for open burning of waste for natural residues and ensure consistency between the NIR and the CRF tables on these AD	
KP-LULUCF			
KL.1	General (KP-LULUCF)	The ERT noted that, according to paragraph 1(k) of annex I to decision 2/CMP.8, in their initial report to facilitate the calculation of the assigned amount for the second commitment period of the Kyoto Protocol, Parties are required to report country-specific information on the background level of emissions associated with annual natural disturbances that have been included in the FMRL. This information has to be consistent with the good practice as outlined in the Kyoto Protocol Supplement. As detailed in the Kyoto Protocol Supplement (section 2.3.9), it is good practice for a Party to provide information on the types of natural disturbances and their definitions for which it wishes to exclude emissions from accounting during the second commitment period under the natural disturbance provision together with a	Not a problem

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue[b] and/or a problem[c]? If yes, classify by type
		consistent time series of emissions for each disturbance type for the calibration period	
		The ERT also noted that, consistent with its intention to apply the natural disturbance provision for forest management, Switzerland indicated in its initial report submitted on 15 April 2016 that it identified, for the calculation of the background level and the margin of emissions associated with natural disturbances, the following disturbance types, inter alia, to have occurred during the calibration period 1990–2009: wildfires (only CO_2 emissions), insect, pest and disease infestations, extreme weather events and geological disturbances like landslides and avalanches	
		The ERT, however, noted that Switzerland did not provide specific information on each type of natural disturbance and its definition whose emissions it wishes to exclude from accounting during the second commitment period under the natural disturbance provision and included this issue in the list of potential problems and further questions raised by the ERT	
		Switzerland submitted an update to its initial report on 7 November 2016, in which it revised the relevant sections, in particular, section 12.1 listing all the natural disturbances that Switzerland wishes to exclude from accounting under the natural disturbance provision, section 12.2 providing more information regarding emissions from natural disturbances, and section 12.3 providing the recalculated value of the background level and margin	
		The ERT noted that, in the update to its initial report, Switzerland transparently and separately reported (in table I under revised section 12.2) types, definitions and emissions of all disturbances whose emissions it wishes to exclude from the accounting under the natural disturbance provision. The ERT notes that although table I includes a row "Other", types of natural disturbances other than wildfires are considered to be negligible in Switzerland, they are reported as "NE", are not included in the calculation of the background level and the margin and their emissions cannot be excluded from the accounting under the natural disturbance provision. Based on the above, Switzerland correctly recalculated the value for the background level and the margin of emissions associated with the natural disturbances by including all (CO_2 and non-CO_2) emissions from natural disturbances	
		The ERT considers that the issue has been resolved	
KL.2	General (KP-LULUCF)	The ERT noted that Switzerland, in its report to facilitate the calculation of the assigned amount for the second commitment period of the Kyoto Protocol, reported that in accordance with decision 2/CMP.7, annex, paragraph 33, it intends to apply the provision to exclude emissions from natural disturbances that have been included in its FMRL for the accounting for forest management during the second commitment period (Switzerland also reported that	Not a problem

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue[b] and/or a problem[c]? If yes, classify by type*
		it will not apply this provision for the accounting for afforestation and reforestation under Article 3, paragraph 3, of the Kyoto Protocol). Switzerland reported aggregate CO_2 emissions from its list of disturbance types, based on mortality estimates from its national forest inventory. However, it did not include non-CO_2 emissions from natural disturbances, although it has reported the estimates of non-CO_2 emissions from wildfires in the CRF tables and the NIR	
		The ERT noted that, according to the Kyoto Protocol Supplement (page 2.44), the methodology for the calculation of the background level and the margin that should be applied (i.e. section 2.4, chapter 2, in volume 4 of the 2006 IPCC Guidelines) requires Parties "to check for complete coverage of CO_2 and non-CO_2 GHG emissions that are related to changes in carbon stocks and pools in order to avoid omissions and double-counting"	
		The ERT also noted that, according to the 2006 IPCC Guidelines, non-CO_2 emissions need to be reported for all fires (prescribed fires and wildfires) in forest land. The ERT considered that excluding these emissions could lead to an underestimation of emissions in the second commitment period and included this issue in the list of potential problems and further questions raised by the ERT	
		In its response to this list, Switzerland submitted an update to its initial report on 7 November 2016. The updated section 12.3 provides a recalculated value of the revised estimates of the background level and margin that included non-CO_2 emissions from all wildfires	
		The ERT considers that the update resolved the issue raised by the ERT	
KL.3	General (KP-LULUCF)	The ERT noted that the recommendations and encouragements made in ID#L.6, ID#L.7, ID#L.9, ID#L.10 and ID#L.12 are also applicable to KP-LULUCF activities	Yes. Transparency*
		The ERT recommends that Switzerland address the transparency issues ID#L.6, ID#L.7, ID#L.9, ID#L.10 and ID#L.12 and provide the necessary information in relation to KP-LULUCF activities	
KL.4	Afforestation and reforestation, deforestation – CO_2	For forest land converted to settlements (buildings and constructions) and settlements converted to forest land, Switzerland has reported only 50% of the difference between the carbon stocks before and after the change as a source or sink, respectively. Even if, compared with previous NIRs, additional information has been provided in the NIR (pages 402–403), the ERT still finds the justification for the value chosen insufficient. Also, owing to legal changes described in section 6.8.2.2 of the NIR, the accurate value might change over time. The ERT noted that chapter 8, volume 4, of the 2006 IPCC Guidelines includes (rather	Yes. Accuracy*

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue[b] and/or a problem[c]? If yes, classify by type
		detailed) good practice guidance on using various assumptions to estimate the soil carbon stocks. The ERT noted that the issue is important in reporting not only under the Convention (accuracy), but also under the Kyoto Protocol as, potentially, using inappropriate carbon stocks might lead to overestimations or underestimations in afforestation and deforestation	
		The ERT recommends that the Party review the assumption that only 50% of the difference between the carbon stocks before and after the change is reported as a source or sink, respectively, for afforestation (from settlements to forest land) and deforestation (from forest land to settlements) and, if necessary, revise its estimates for these KP-LULUCF activities	
KL.5	Deforestation	The ERT noted that issue ID#L.11 may also affect the estimates for deforestation	Yes. Accuracy*
		The ERT recommends that Switzerland address issue ID#L.11 and, if necessary, revise its estimates for deforestation	
KL.6	Forest management – CH_4 and N_2O	The ERT noted that issue ID#L.13 affects the CH_4 and N_2O emission estimates for forest management	Yes. Transparency*
		The ERT recommends that Switzerland explain in its NIR the estimation of CH_4 and N_2O emissions from open burning of residues from forests and its allocation to the category controlled burning in CRF table 4(KP-II)4 (GHG emissions from biomass burning for forest management)	
		The ERT also recommends that Switzerland include the reallocated values in its FMRL, applying a technical correction if necessary	
KL.7	Forest management	The ERT noted that Switzerland reported its forest management reference level as 0.22 kt CO_2 eq and the technical corrections to its FMRL as –1.90 kt CO_2 eq in CRF table accounting. The ERT noted that the FMRL is reported as 0.220 Mt CO_2 eq (or 220 kt CO_2 eq) in decision 2/CMP.7, annex, appendix. During the review, the Party indicated that FMRL and technical corrections are incorrectly reported in the CRF table accounting owing to a unit conversion error, and that the correct values are 220.00 kt CO_2 eq and –1 900.58 kt CO_2 eq for the FMRL and the technical corrections, respectively	Yes. Accuracy*
		The ERT recommends that the Party report the correct values for both FMRL and the technical corrections in CRF table accounting	
KL.8	Harvested wood products – CO_2	Switzerland applied the equations provided in the Kyoto Protocol Supplement to estimate carbon stock changes in the HWP pool. However, although AD are available in the FAOSTAT database, Switzerland has applied the tier 1 approach, that is, instantaneous	Yes. Accuracy*

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue[b] and/or a problem[c]? If yes, classify by type*
		oxidation, to estimate carbon stock change in the product category paper for reasons described in the NIR (page 409)	
		The ERT noted that, according to paragraphs 29 and 30 of the annex to decision 2/CMP.7, provided that transparent and verifiable AD for the HWP products are available, carbon stock changes in the HWP categories shall be estimated on the basis of the first-order decay function or other country-specific methods. According to the 2006 IPCC Guidelines and the Kyoto Protocol Supplement, good practice estimates could also be derived using AD for the three aggregate HWP commodities, sawn wood, wood-based panels, and paper and paperboard, from publicly available databases of international organizations such as FAOSTAT	
		The ERT recommends that Switzerland estimate and report carbon stock changes for the product category paper based on either the national or the internationally available data, or provide transparent justification in the NIR as to why the available information on AD for paper is not transparent and verifiable	
KL.9	Harvested wood products – CO_2	The ERT noted that CRF table 4(KP-I)C shows the amount of exported HWP as "NA" for land subject to deforestation and land subject to forest management. During the review, Switzerland provided clarification that carbon stock changes in exported HWP are correctly included in the calculation, which the ERT found satisfactory	Yes. Transparency*
		The ERT recommends that Switzerland increase the transparency of its reporting by correctly reporting the amount of exported HWP in CRF table 4(KP-I)C instead of using "NA" or by entering the notation key "IE" if exported HWP are included in the total HWP production	
KL.10	Harvested wood products – CO_2	When applying equation 2.8.1 of the Kyoto Protocol Supplement, the amount of roundwood exported should be excluded from the calculations to estimate the share of industrial roundwood for domestic production originating from domestic forests. During the review, Switzerland demonstrated that roundwood had been excluded from the calculations	Yes. Transparency*
		The ERT recommends that the Party increase the transparency of the explanation in the NIR to clarify that exports of roundwood are excluded from the calculations following equation 2.8.1	

Abbreviations: AD = activity data, AFOLU = agriculture, forestry and other land use, CRF = common reporting format, EF = emission factor, ERT = expert review team, F-gases = fluorinated gases, FMRL = forest management reference level, FAOSTAT = database of the Food and Agriculture Organization of the United Nations, GHG = greenhouse gas, HWP = harvested wood products, IE = included elsewhere, IEA = International Energy Agency, IPCC = Intergovernmental Panel on Climate Change, IPPU = industrial processes and product use, KP-LULUCF = LULUCF emissions and removals from activities under Article 3,

paragraphs 3 and 4, of the Kyoto Protocol, Kyoto Protocol Supplement = *2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol*, LULUCF = land use, land-use change and forestry, MSW = municipal solid waste, NA = not applicable, NAIS = *Nachhaltigkeit und Erfolgskontrolle im Schutzwald* (Sustainability and success monitoring in protection forests), NCV = net calorific value, NE = not estimated, NIR = national inventory report, NMVOC = non-methane volatile organic compounds, NO = not occurring, QA/QA = quality assurance/quality control, Revised 1996 IPCC Guidelines = *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, SWDS = solid waste disposal sites, UNFCCC Annex I inventory reporting guidelines = "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories", Wetlands Supplement = *2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands*, 2006 IPCC Guidelines = *2006 IPCC Guidelines for National Greenhouse Gas Inventories*.

[a] The review of the 2015 GHG annual submission is being held in conjunction with the review of the 2016 annual submission, in accordance with decision 10/CMP.11, paragraph 1. The ERT has reviewed both the 2015 and the 2016 inventory submission, and in accordance with the conclusions from the 13th meeting of GHG inventory lead reviewers (para. 9) has started with the review of the 2016 submission. This table includes all findings that are relevant for both the 2015 and the 2016 annual submission (i.e. this table excludes findings that, although they may have been relevant for the 2015 annual submission, had already been resolved in the 2016 annual submission).

[b] Recommendations are related to issues as defined in decision 13/CP.20, annex, paragraph 81, or problems as identified in decision 22/CMP.1, annex, paragraph 69, identified by the ERT during the review. Encouragements are made to the Party to address all findings not related to such issues.

[c] An asterisk is included next to each issue type that is also a problem, as defined in decision 22/CMP.1, annex, paragraphs 68 and 69, including those that lead to an adjustment or a question of implementation.

[d] Available at <www.hbefa.net/e/index.html>.

[e] Available at <www.eea.europa.eu/publications/emep-eea-guidebook-2013>.

[f] Available at <www.eea.europa.eu/data-and-maps/indicators/proportion-of-vehicle-fleet-meeting/proportion-of-vehicle-fleet-meeting-1>.

[g] Available at <http://unfccc.int/3765>.

VI. Application of adjustments

11. The ERT has not identified the need to apply any adjustments to the 2015 annual submission of Switzerland.

VII. Accounting quantities for activities under Article 3, paragraph 3, and, if any, activities under Article 3, paragraph 4, of the Kyoto Protocol

12. Switzerland has elected commitment period accounting and therefore the issuance and cancellation of units for activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol are not applicable for the 2015 review.

VIII. Questions of implementation

13. No questions of implementation were identified by the ERT during the review.

Annex I

Overview of greenhouse gas emissions and removals for Switzerland for submission year 2015 and data and information on activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol

1. Tables 6–9 provide an overview of total greenhouse gas emissions and removals, as submitted by Switzerland.

Table 6
Total greenhouse gas emissions for Switzerland, base year[a]–2013[b]
(kt CO_2 eq)

	Total GHG emissions excluding indirect CO_2 emissions		*Total GHG emissions including indirect CO_2 emissions[c]*		*Land-use change (Article 3.7bis as contained in the Doha Amendment)[d]*	*KP-LULUCF activities (Article 3.3 of the Kyoto Protocol)[e]*	*KP-LULUCF activities (Article 3.4 of the Kyoto Protocol)*	
	Total including LULUCF	*Total excluding LULUCF*	*Total including LULUCF*	*Total excluding LULUCF*			*CM, GM, RV, WDR*	*FM*
FMRL								220.00
Base year	52 417.84	53 295.54	52 829.03	53 706.73	NA		NA	
1990	52 417.84	53 295.54	52 829.03	53 706.73				
1995	48 458.93	52 191.59	48 731.81	52 464.46				
2000	57 215.66	52 301.61	57 402.10	52 488.05				
2010	52 264.51	54 358.89	52 388.29	54 482.68				
2011	48 596.31	50 282.11	48 719.27	50 405.07				
2012	49 624.75	51 623.33	49 745.68	51 744.27				
2013	50 691.76	52 505.80	50 811.77	52 625.81		111.75	NA	–3 224.77

Abbreviations: CM = cropland management, FM = forest management, FMRL = forest management reference level, GHG = greenhouse gas, GM = grazing land management, KP-LULUCF = LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, LULUCF = land use, land-use change and forestry, NA = not applicable, RV = revegetation, WDR = wetland drainage and rewetting.

[a] Base year refers to the base year under the Kyoto Protocol, which is 1990 for all gases. Switzerland has not elected any activities under Article 3, paragraph 4, of the Kyoto Protocol. For activities under Article 3, paragraph 3, of the Kyoto Protocol and forest management under Article 3, paragraph 4, only the inventory years of the commitment period must be reported.

[b] Emissions/removals reported in the sector other (sector 6) are not included in total GHG emissions.

[c] The Party has reported indirect CO_2 emissions in common reporting format table 6.

[d] The value reported in this column refers to 1990.

[e] Activities under Article 3, paragraph 3, of the Kyoto Protocol, namely afforestation and reforestation, and deforestation.

Table 7
Greenhouse gas emissions by gas for Switzerland, excluding land use, land-use change and forestry, 1990–2013[a]
(kt CO_2 eq)

	CO_2[b]	*CH_4*	*N_2O*	*HFCs*	*PFCs*	*Unspecified mix of HFCs and PFCs*	*SF_6*	*NF_3*
1990	44 515.76	6 085.63	2 851.79	0.02	116.52	NA, NO	137.01	NA, NO
1995	43 629.44	5 775.43	2 702.98	245.90	17.49	NA, NO	93.23	NA, NO
2000	43 719.52	5 388.29	2 560.60	625.94	49.90	NA, NO	143.79	NA, NO
2010	45 137.93	5 270.90	2 523.48	1 329.36	64.57	NA, NO	147.98	8.45
2011	41 083.19	5 205.59	2 472.60	1 410.15	67.78	NA, NO	159.53	6.22
2012	42 349.57	5 164.28	2 460.77	1 489.05	71.33	NA, NO	208.91	0.36
2013	43 288.76	5 094.37	2 424.98	1 513.19	51.96	NA, NO	252.46	0.09
Per cent change 1990–2013	**–2.8**	**–16.3**	**–15.0**	**6106099.3**	**–55.4**	**NA**	**84.3**	**NA**

Abbreviations: NA = not applicable, NO = not occurring.
[a] Emissions/removals reported in the sector other (sector 6) are not included in total greenhouse gas emissions.
[b] CO_2 emissions include indirect CO_2 emissions reported in common reporting format table 6.

Table 8
Greenhouse gas emissions by sector for Switzerland, 1990–2013[a, b]
(kt CO_2 eq)

	Energy	*IPPU*	*Agriculture*	*LULUCF*	*Waste*	*Other*
1990	41 880.57	3 887.21	6 803.88	–877.70	1 135.06	13.26
1995	41 892.98	3 117.10	6 503.06	–3 732.66	951.32	14.29
2000	42 162.62	3 266.71	6 122.74	4 914.05	935.97	15.36
2010	43 214.47	4 122.08	6 241.00	–2 094.39	905.13	15.41
2011	39 171.35	4 156.82	6 185.31	–1 685.80	891.59	15.41
2012	40 562.53	4 159.95	6 151.92	–1 998.59	869.87	15.41
2013	41 499.00	4 181.61	6 083.11	–1 814.04	862.09	15.41
Per cent change 1990–2013	**–0.9**	**7.6**	**–10.6**	**106.7**	**–24.0**	**16.2**

Abbreviations: IPPU = industrial processes and product use, LULUCF = land use, land-use change and forestry.
[a] Emissions/removals reported in the sector other (sector 6) are not included in total greenhouse gas emissions.
[b] Totals include indirect CO_2 emissions reported in common reporting format table 6.

Table 9

Greenhouse gas emissions/removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol by activity, base year[a,b]–2013, for Switzerland

(kt CO_2 eq)

	Article 3.7bis as contained in the Doha Amendment[c]	*Article 3.3 of the Kyoto Protocol*		*Forest management and elected Article 3.4 activities of the Kyoto Protocol*				
	Land-use change	*Afforestation and reforestation*	*Deforestation*	*Forest management*	*Cropland management*	*Grazing land management*	*Revegetation*	*Wetland drainage and rewetting*
FMRL				220.00				
Technical correction				–1 900.58				
Base year					NA	NA	NA	NA
2013		–17.65	129.40	–3 224.77	NA	NA	NA	NA
Per cent change base year–2013					**NA**	**NA**	**NA**	**NA**

Abbreviations: FMRL = forest management reference level, NA = not applicable.

[a] Base year refers to the base year under the Kyoto Protocol, which 1990 for all gases. Switzerland has not elected any activities under Article 3, paragraph 4, of the Kyoto Protocol. For activities under Article 3, paragraph 3, of the Kyoto Protocol, and forest management under Article 3, paragraph 4, only the inventory years of the commitment period must be reported.

[b] Values in this table include emissions on lands subject to natural disturbances, if applicable.

[c] The value reported in this column refers to 1990.

2. Table 10 provides an overview of relevant key data for Switzerland's reporting under Article 3, paragraphs 3 and 4, of the Kyoto Protocol.

Table 10
Key relevant data for Switzerland under Article 3, paragraphs 3 and 4, of the Kyoto Protocol

Key parameters	*Values*
Periodicity of accounting	(a) Afforestation/reforestation: commitment period accounting (b) Deforestation: commitment period accounting (c) Forest management: commitment period accounting (d) Cropland management: not elected (e) Grazing land management: not elected (f) Revegetation: not elected (g) Wetland drainage and rewetting: not elected
Election of activities under Article 3, paragraph 4	None
Election of application of provisions for natural disturbances	Yes, for forest management only
3.5 per cent of total base-year GHG emissions, excluding LULUCF and including indirect CO_2 emissions	1 879.735 kt CO_2 eq (15 037.884 kt CO_2 eq for the duration of the commitment period)
Cancellation of AAUs, ERUs, CERs and/or issuance of RMUs in the national registry for:	
1. Afforestation and reforestation in 2013	NA
2. Deforestation in 2013	NA
3. Forest management in 2013	NA
4. Cropland management in 2013	NA
5. Grazing land management in 2013	NA
6. Revegetation in 2013	NA
7. Wetland drainage and rewetting in 2013	NA

Abbreviations: AAU = assigned amount unit, CER = certified emission reduction unit, ERU = emission reduction unit, GHG = greenhouse gas, LULUCF = land use, land-use change and forestry, NA = not applicable, RMU = removal unit.

Annex II

Information to be included in the compilation and accounting database

Table 11 includes the information to be included in the compilation and accounting database for Switzerland. Data shown are from the original annual submission of the Party, including the latest revised estimates submitted, adjustments (if applicable), as well as the final data to be included in the compilation and accounting database.

Table 11
Information to be included in the compilation and accounting database for 2013, including the commitment period reserve, for Switzerland
(t CO_2 eq)

	Original submission	*Revised estimates*	*Adjustment*[a]	*Final*[b]
Commitment period reserve	325 663 828	325 591 672		325 591 672
Annex A emissions for 2013				
CO_2[c]	43 288 757			43 288 757
CH_4	5 096 361	5 094 373		5 094 373
N_2O	2 410 931	2 424 977		2 424 977
HFCs	1 513 189			1 513 189
PFCs	51 963			51 963
Unspecified mix of HFCs and PFCs	NA			NA
SF_6	252 457			252 457
NF_3	95			95
Total Annex A sources	**52 613 753**	**52 625 811**		**52 625 811**
Activities under Article 3, paragraph 3, of the Kyoto Protocol for 2013				
3.3 Afforestation and reforestation	–17 647			–17 647
3.3 Deforestation	129 400			129 400
Forest management and elected activities under Article 3, paragraph 4, of the Kyoto Protocol for 2013				
3.4 Forest management for 2013	–3 227 384	–3 224 769		–3 224 769

Abbreviations: Annex A sources = sources included in Annex A to the Kyoto Protocol, NA = not applicable.
[a] "Adjustment" is relevant only for Parties for which the expert review team has calculated one or more adjustment(s).
[b] "Final" includes revised estimates, if any, and/or adjustments, if any.
[c] CO_2 emissions include indirect CO_2 emissions reported in common reporting format table 6.

Annex III

Additional information to support findings in table 2

Missing categories that may affect completeness

The categories for which methods are included in the *2006 IPCC Guidelines for National Greenhouse Gas Inventories* were reported as "NE" (not estimated) or for which the expert review team otherwise determined that there may be an issue with the completeness of reporting in the Party's inventory are the following:

(a) 1.A.1.a Public electricity and heat production – CH_4 emissions from other fuels (see issue ID#E.10);

(b) 1.A.2.a Iron and steel – CO_2 emissions from limestone use (see issue ID#E.12);

(c) 1.A.2.d Pulp, paper and print– CH_4 and N_2O emissions (see issue ID#E.13);

(d) 1.B.2.c Venting and flaring – CO_2, CH_4 and N_2O emissions from flaring of natural gas (see issue ID#E.19).

Annex IV

Documents and information used during the review

A. Reference documents

Aggregate information on greenhouse gas emissions by sources and removals by sinks for Parties included in Annex I to the Convention. Note by the secretariat. Available at <http://unfccc.int/resource/webdocs/agi/2015.pdf>.

Annual status report for Switzerland for 2015. Available at <http://unfccc.int/resource/docs/2015/asr/che.pdf>.

FCCC/ARR/2014/CHE. Report on the individual review of the annual submission of Switzerland submitted in 2014. Available at <http://unfccc.int/resource/docs/2015/arr/che.pdf>.

FCCC/ARR/2013/CHE. Report of the individual review of the annual submission of Switzerland submitted in 2013. Available at <http://unfccc.int/resource/docs/2014/arr/che.pdf>.

FCCC/ARR/2012/CHE. Report of the individual review of the annual submission of Switzerland submitted in 2012. Available at <http://unfccc.int/resource/docs/2013/arr/che.pdf>.

"Guidelines for national systems for the estimation of anthropogenic greenhouse gas emissions by sources and removals by sinks under Article 5, paragraph 1, of the Kyoto Protocol". Decision 19/CMP.1. Available at <http://unfccc.int/resource/docs/2005/cmp1/eng/08a03.pdf#page=14>.

"Guidelines for review under Article 8 of the Kyoto Protocol". Decision 22/CMP.1. Available at <http://unfccc.int/resource/docs/2005/cmp1/eng/08a03.pdf#page=51>.

"Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories". Annex to decision 24/CP.19. Available at <http://unfccc.int/resource/docs/2013/cop19/eng/10a03.pdf#page=4>.

"Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol". Decision 15/CMP.1. Available at <http://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf#page=54>.

"Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention". Annex to decision 13/CP.20. Available at <http://unfccc.int/resource/docs/2014/cop20/eng/10a03.pdf#page=6>.

"Implications of the implementation of decisions 2/CMP.7 to 4/CMP.7 and 1/CMP.8 on the previous decisions on methodological issues related to the Kyoto Protocol, including those relating to Articles 5, 7 and 8 of the Kyoto Protocol, part I: implications related to accounting and reporting and other related issues". Decision 3/CMP.11. Available at <http://unfccc.int/resource/docs/2015/cmp11/eng/08a01.pdf#page=5>.

"Implications of the implementation of decisions 2/CMP.7 to 4/CMP.7 and 1/CMP.8 on the previous decisions on methodological issues related to the Kyoto Protocol, including those relating to Articles 5, 7 and 8 of the Kyoto Protocol, part II: implications related to review

and adjustments and other related issues". Decision 4/CMP.11. Available at <http://unfccc.int/resource/docs/2015/cmp11/eng/08a01.pdf#page=30>.

Intergovernmental Panel on Climate Change. 2006. 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Available at <http://www.ipcc-nggip.iges.or.jp/public/2006gl/>.

Intergovernmental Panel on Climate Change. 2014. 2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol. Available at <http://www.ipcc-nggip.iges.or.jp/public/kpsg>.

Intergovernmental Panel on Climate Change. 2014. 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands. Available at <http://www.ipcc-nggip.iges.or.jp/public/wetlands/index.html>.

Standard independent assessment report, part 1, for Switzerland for 2016. Available at <http://unfccc.int/files/kyoto_mechanisms/application/pdf/siar_2016_che_1_2.pdf.>

Standard independent assessment report, part 2, for Switzerland for 2016. Available at <http://unfccc.int/files/kyoto_mechanisms/application/pdf/siar_2016_che_2_2.pdf>.

B. Additional information provided by the Party

Responses to questions during the review were received from Ms. Regine Röthlisberger (Swiss Federal Department of the Environment), including additional material on the methodology and assumptions used. The following documents[1] were also provided by Switzerland:

"A New Method to Determine the Ratio of Electricity Production from Fossil and Biogenic Sources in Waste-to-Energy Plants", Environ. Sci. Technol. 2007, 41, 2579-2586.

AGRAR Forschung. GRUDAF 2009. Grundlagen für die Düngung im Acker- und Futterbau. 2009. Redaktion: R. Flisch, S. Sinaj, R. Charles, W. Richner. Forschungsanstalten Agroscope Changins-WadenswilACW und Agroscope Reckenholz-Tanikon ART. 100 pp.

Agroscope. 2016. Agricultural CH_4 and N_2O emissions in Switzerland: QA/QC. Internal documentation (with continual update) by D. Bretscher. Agroscope Research Station; Zürich, Switzerland.

AWEL. 2009. "Qualitätsentwicklung konventionell ausgetragener Schlacke", Baudirektion des Kantons Zürich, AWEL Amt für Abfall, Wasser, Energie und Luft, Abteilung Abfallwirtschaft und Betriebe (AW), Zürich 2009.

Brassel, P., Lischke, H. 2001. *Swiss National Forest Inventory: Methods and Models of the Second Assessment*. WSL Swiss Federal Research Institute, CH-8903 Birmensdorf. Available at <https://www.lfi.ch/publikationen/publ/LFI2_Methoden.pdf.>

Charta der öffentlichen Statistik. 2012. Available at <http://www.corstat.ch/de/statistik-schweiz/charta/statistik-charta/>.

Consaba. 2016: Erhebung Verwertung Deponiegas über Fackelanlagen in der Schweiz 1990 bis 2014. Vertraulich. Entwurf 6. Bern, 25.1.2016.

"Emissionsfaktoren von Holzfeuerungen – Aktualisierung und Ergänzung 2014", Thomas Nussbaumer and Léonore Hälg, Auftraggeber: Bundesamt für Umwelt, Bern, Zürich, 22. Januar 2015–V3.0.

[1] Reproduced as received from the Party.

EMPA. 2013. “Schlussbericht:N2O und CH4 Emissionen aus KVAs”, Duebendorf, 2013.

FOEN 2015n: Biological Treatment of Solid Waste (5B) – Revision 2015.

Kupper T., Bonjour C., Achermann B., Zaucker F., Rihm B., Menzi H. 2013. *Ammoniakemissionen in der Schweiz 1990–2010 und Prognose bis 2020*. Hochschule für Agrar-, Forst- und Lebensmittelwissenschaften, Zollikofen. Available at <http://www.agrammon.ch/dokumente-zum-download>.

“Non-road energy consumption and pollutant emissions: Study for the period from 1980 to 2050”, Published by the Federal Office for the Environment, FOEN, Bern, 2015.

Oyten. 2004. “Schadstoffverbringung in Senken durch Abfallbehandlung”, BZL Kommunikation und Projektsteuerung GmbH.

Rohner, B., Thürig, E. 2015. *Entwicklung klimasensitiver Wachstums-funktionen für das Szenariomodell «Massimo»*. Schweiz Z Forstwes 166 (2015) 6: 389–398. Available at <https://www.researchgate.net/publication/283479678>.

Statistische Erhebungen und Schätzungen. Über Landwirtschaft und Ernährung. Agristat. 2014. Brugg, Switzerland. 271 pp.

Schenk, M. .K., Appel, S., Daum, D. 1997: N_2O emissions during composting of organic waste. Acta Hort. (ISHS) 450:253-262.

Thürig, E. 2005. *Carbon budget of Swiss forests: evaluation and application of empirical models for assessing future management impacts.* A dissertation submitted to the Swiss federal institute of technology Zurich for the degree of doctor of natural sciences, ETH, Zürich. Available at <http://e-collection.library.ethz.ch/eserv/eth:27729/eth-27729-02.pdf>.

Annex V

Acronyms and abbreviations

CH_4	methane
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
CRF	common reporting format
ERT	expert review team
GHG	greenhouse gas
IPCC	Intergovernmental Panel on Climate Change
IPPU	industrial processes and product use
KP-LULUCF	LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol
kt	kilotonne
LULUCF	land use, land-use change and forestry
NA	not applicable
NE	not estimated
NIR	national inventory report
NO	not occurring
QA/QC	quality assurance/quality control
SEF	standard electronic format
SIAR	standard independent assessment report
UNFCCC	United Nations Framework Convention on Climate Change